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(54) **LIQUID CONTAINER AND LIQUID CONSUMPTION APPARATUS**

(71) Applicant: **SEIKO EPSON CORPORATION**, Tokyo (JP)

(72) Inventors: **Yuji Aoki**, Nagano (JP); **Masaru Takahashi**, Nagano (JP); **Yoshikatsu Yamamoto**, Nagano (JP); **Hisao Tanaka**, Nagano (JP)

(73) Assignee: **Seiko Epson Corporation**, Tokyo (JP)

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Feb. 6, 2012 (JP) 2012-022831

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B41J 2/175 (2006.01)
B65B 3/04 (2006.01)
B65B 3/02 (2006.01)

(52) **U.S. Cl.**

CPC ***B65B 3/045*** (2013.01); ***B41J 2/1752*** (2013.01); ***B41J 2/17513*** (2013.01); ***B41J 2/17553*** (2013.01); ***B41J 2/17559*** (2013.01); ***B65B 3/027*** (2013.01)

(58) **Field of Classification Search**

USPC 141/10, 23, 65, 71, 72, 73, 314; 347/86
See application file for complete search history.

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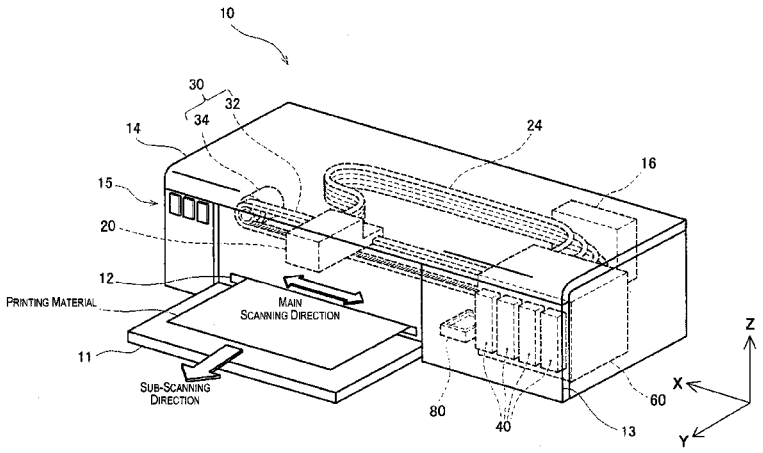
Primary Examiner — Mark A Laurenzi
Assistant Examiner — Andrew Schmid
(74) *Attorney, Agent, or Firm* — Global IP Counselors, LLP

(57) **ABSTRACT**

A liquid container includes a liquid containing bag and a case member. The liquid containing bag includes a flat end portion extending in a first direction. The case member defines an opening at one end and accommodates the liquid containing bag inserted from the opening in the first direction. The case member has an end portion accommodating section extending in the first direction and accommodating at least the end portion of the liquid containing bag, a main portion accommodating section accommodating a main portion of the liquid containing bag, and a partition wall that partitions the end portion accommodating section and the main portion accommodating section. The partition wall includes a slit extending along the first direction, with the end portion of the liquid containing bag being inserted through the slit.

14 Claims, 17 Drawing Sheets



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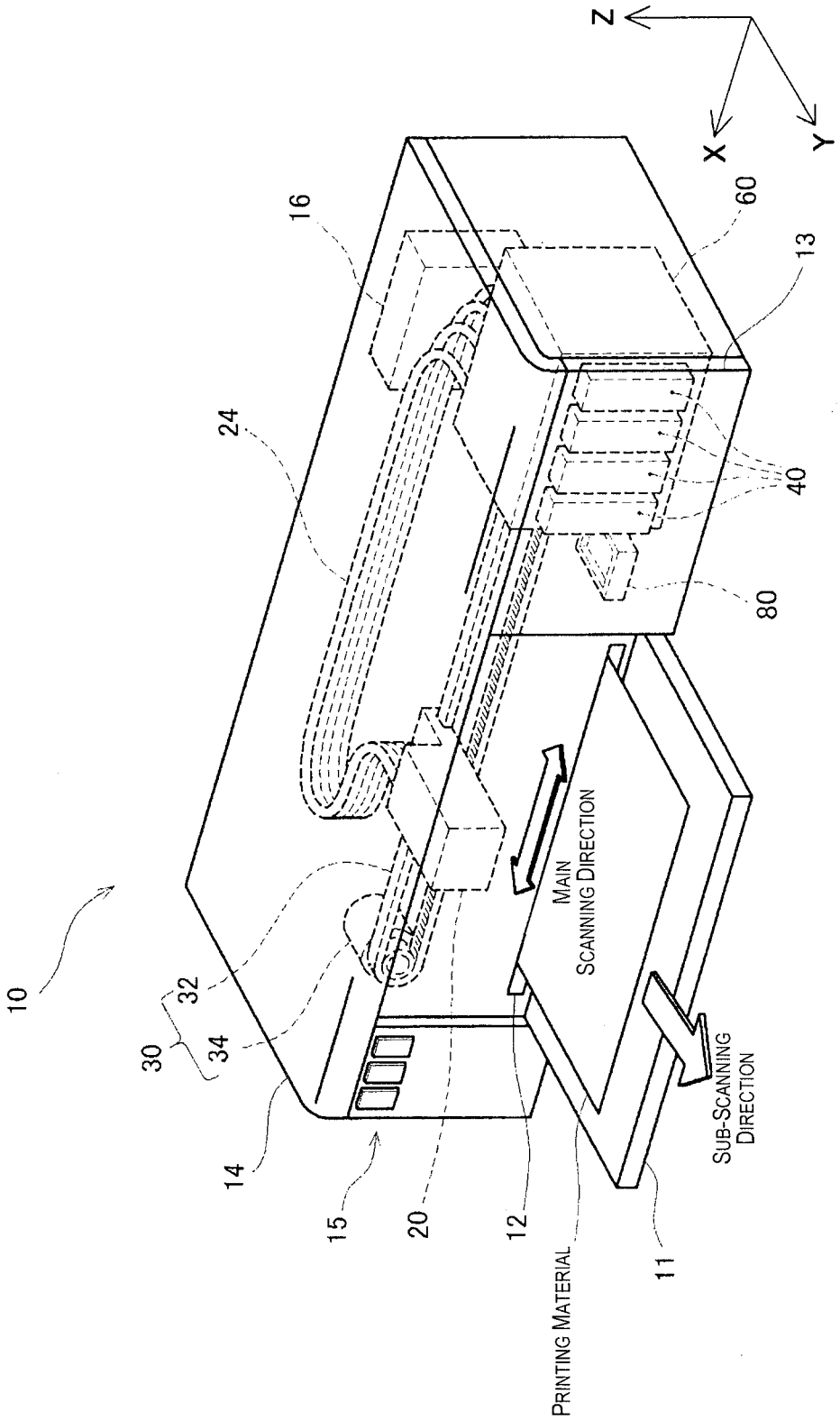

Z
X
Y
16
60
13
24
40
80
10
32
30
34
14
15
20
12
11
MAIN SCANNING DIRECTION
SUB-SCANNING DIRECTION
PRINTING MATERIAL

Fig. 1

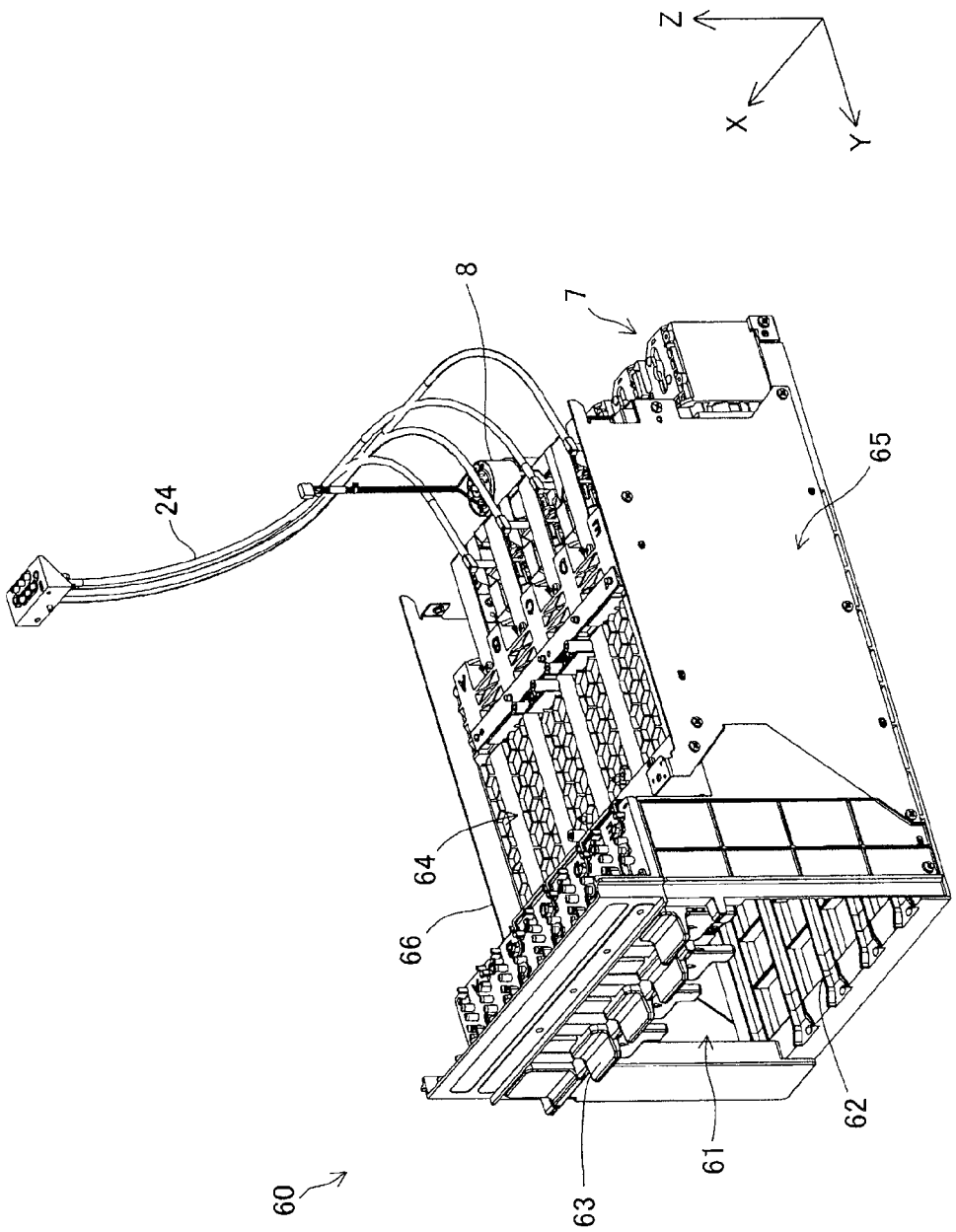


Fig. 2

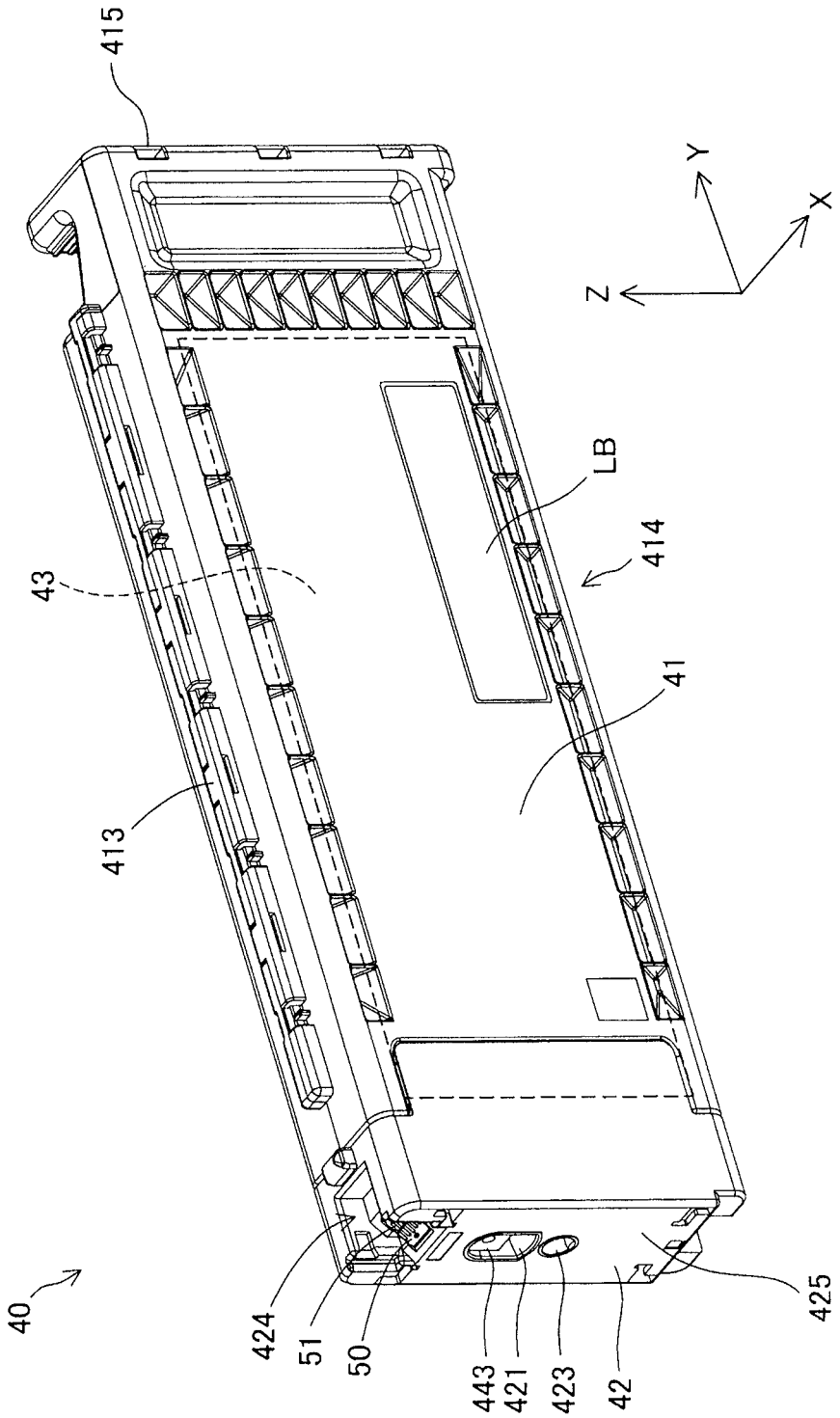
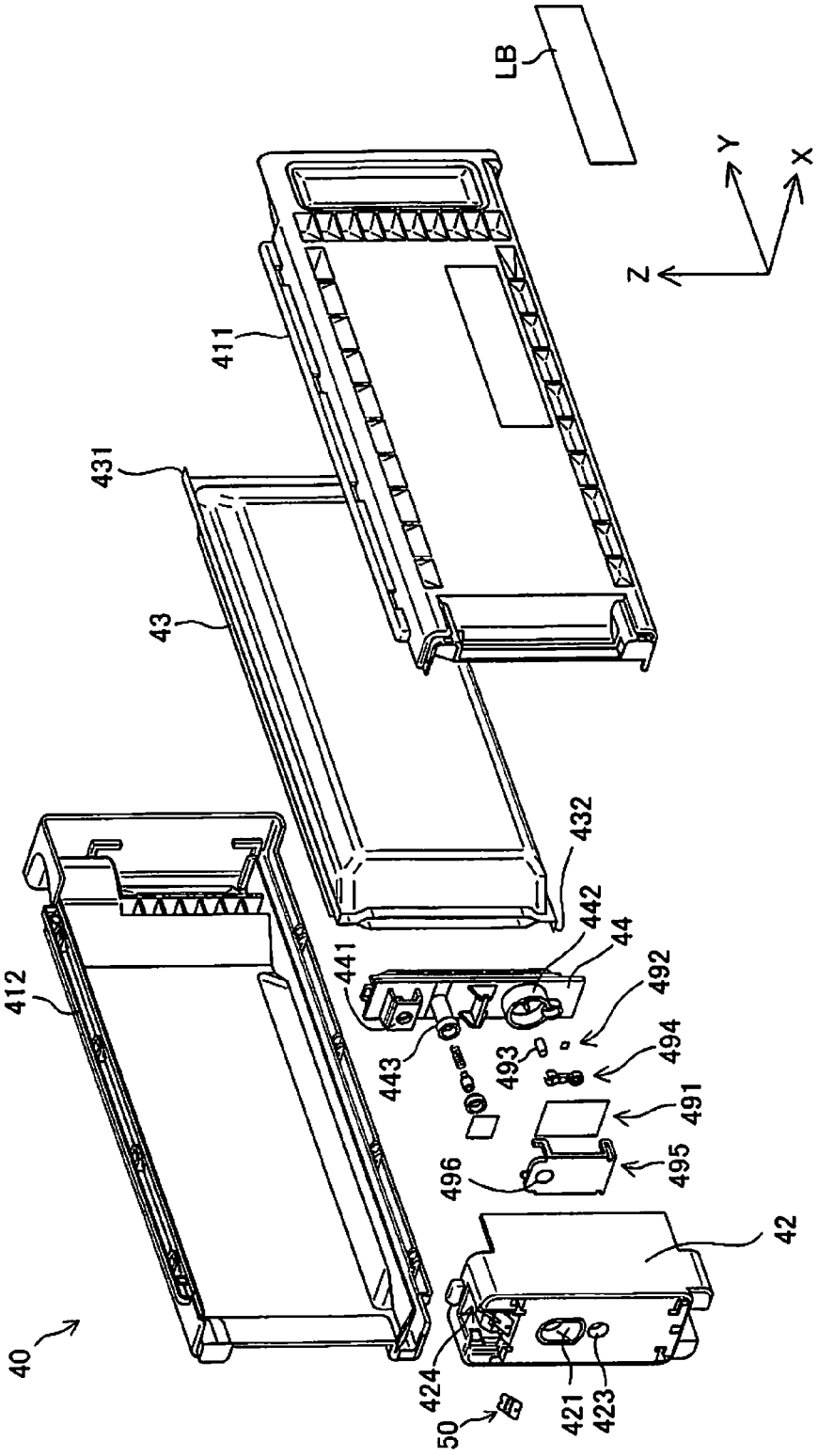


Fig. 3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Y
X
Z
411
431
43
432
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412
492
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493
443
491
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496
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40
424
421
423
50

Fig. 4

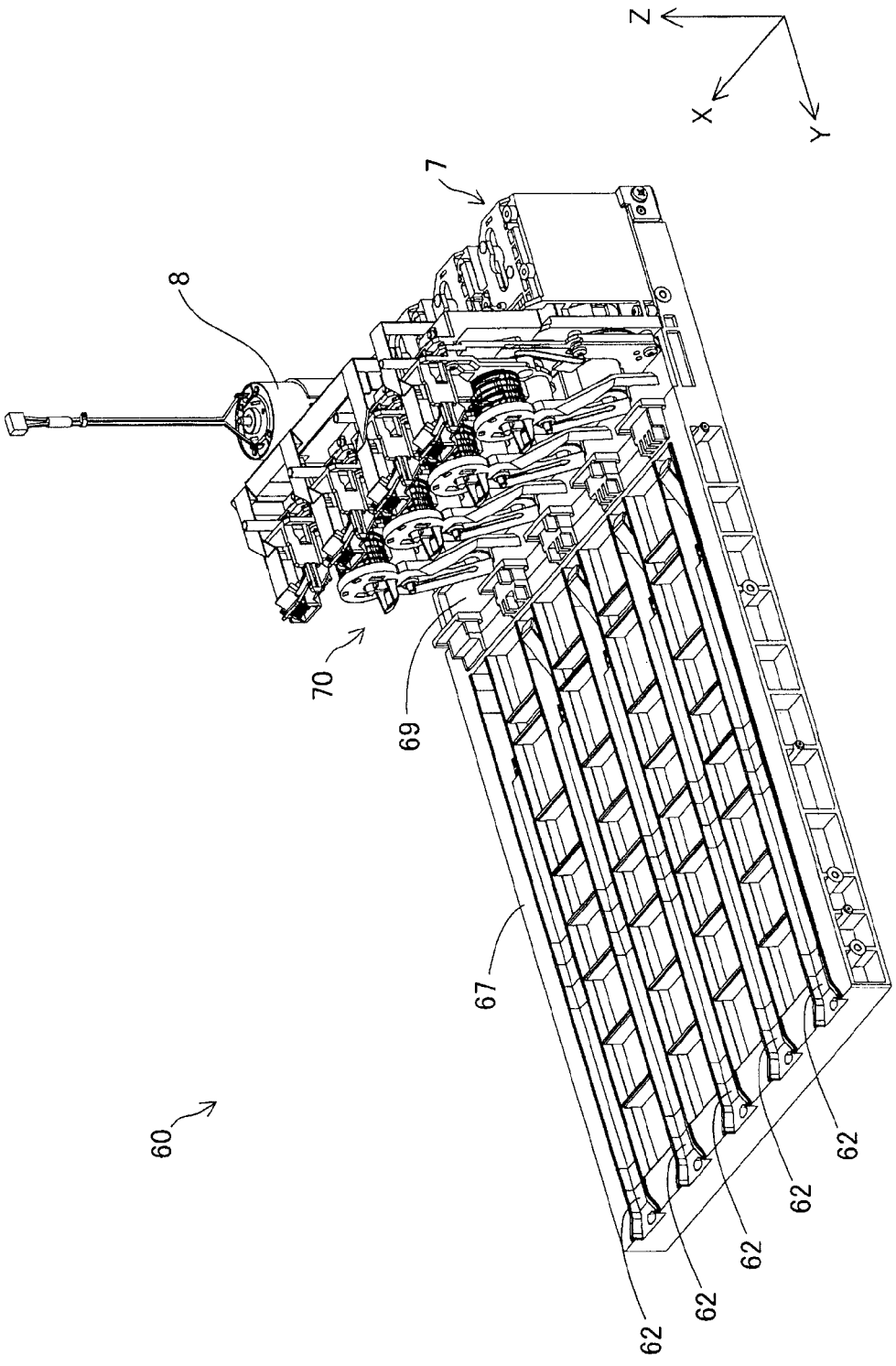


Fig. 5

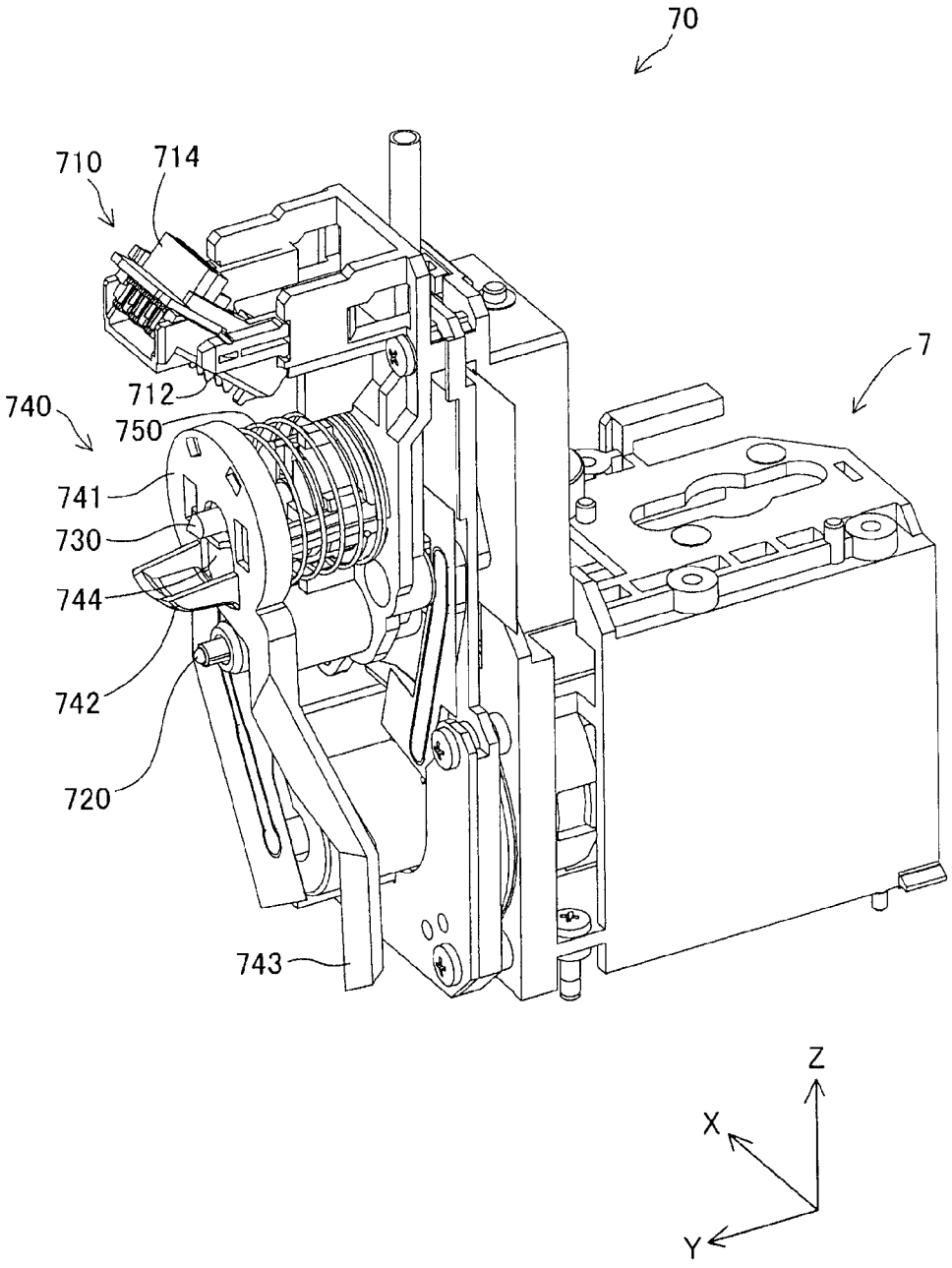


Fig. 6

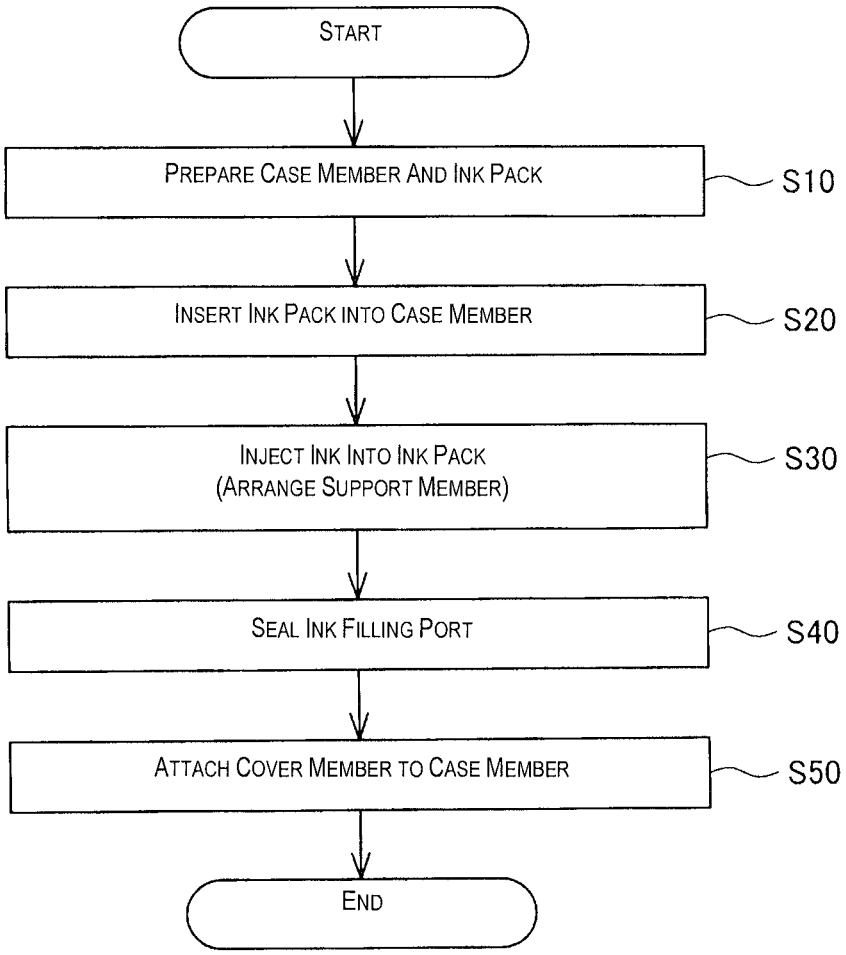

START
PREPARE CASE MEMBER AND INK PACK
S10
INSERT INK PACK INTO CASE MEMBER
S20
INJECT INK INTO INK PACK
(ARRANGE SUPPORT MEMBER)
S30
SEAL INK FILLING PORT
S40
ATTACH COVER MEMBER TO CASE MEMBER
S50
END

Fig. 7

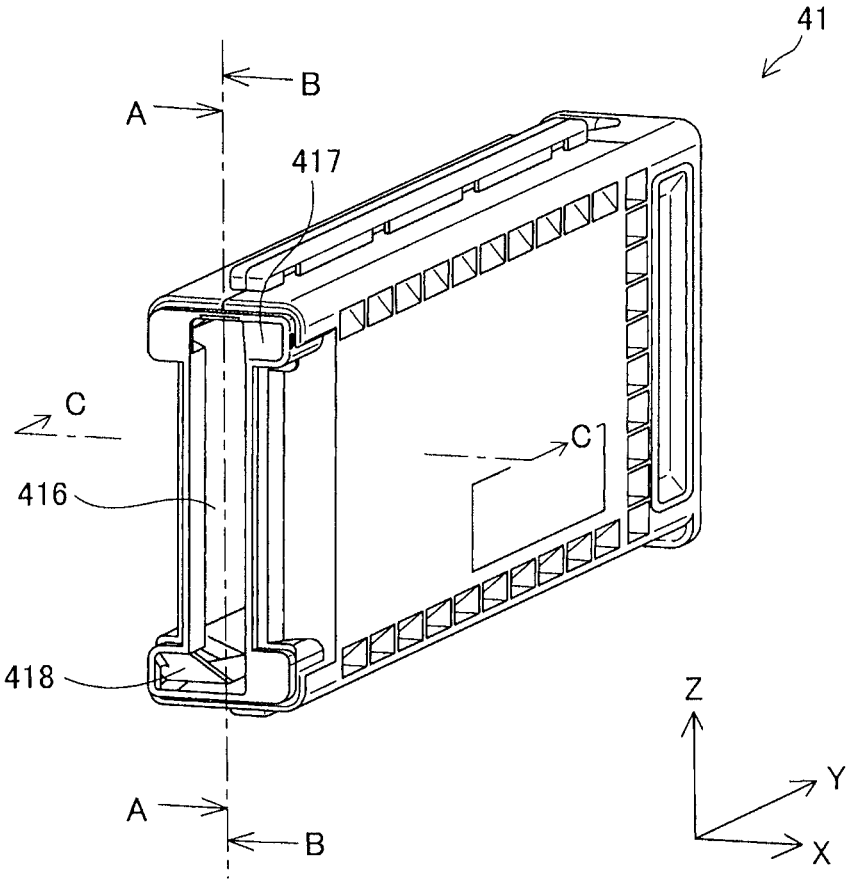


Fig. 8

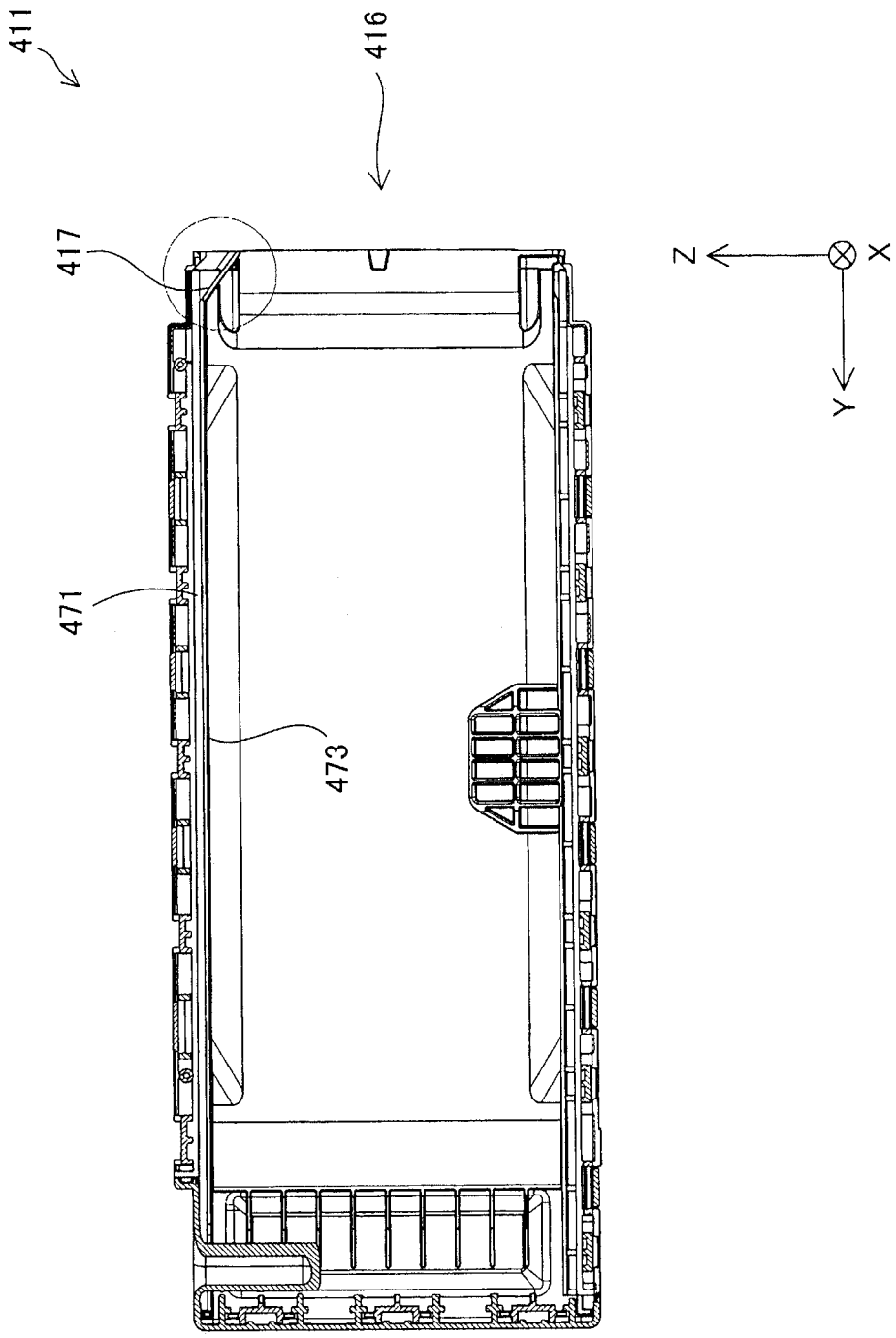


Fig. 9

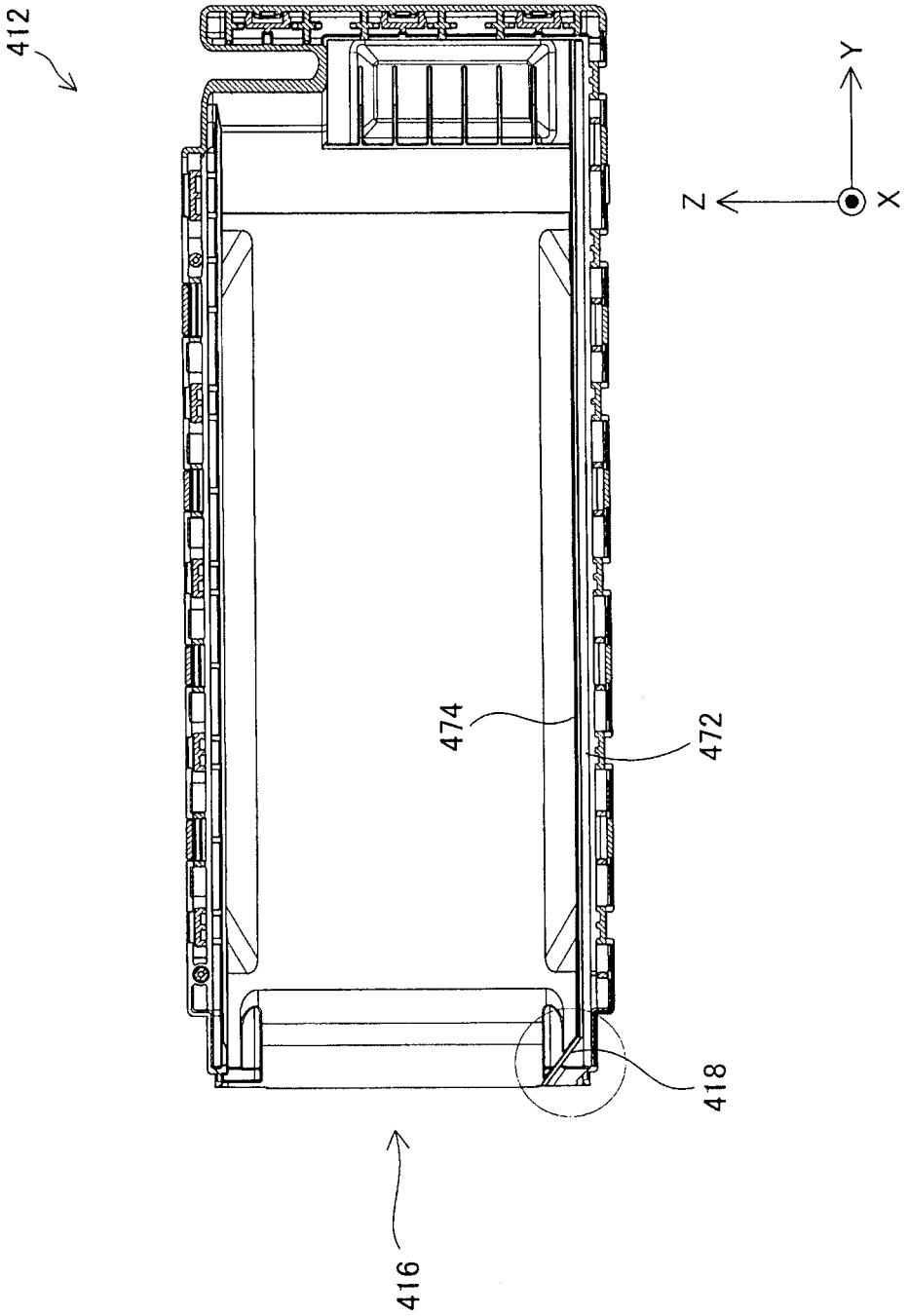


Fig. 10

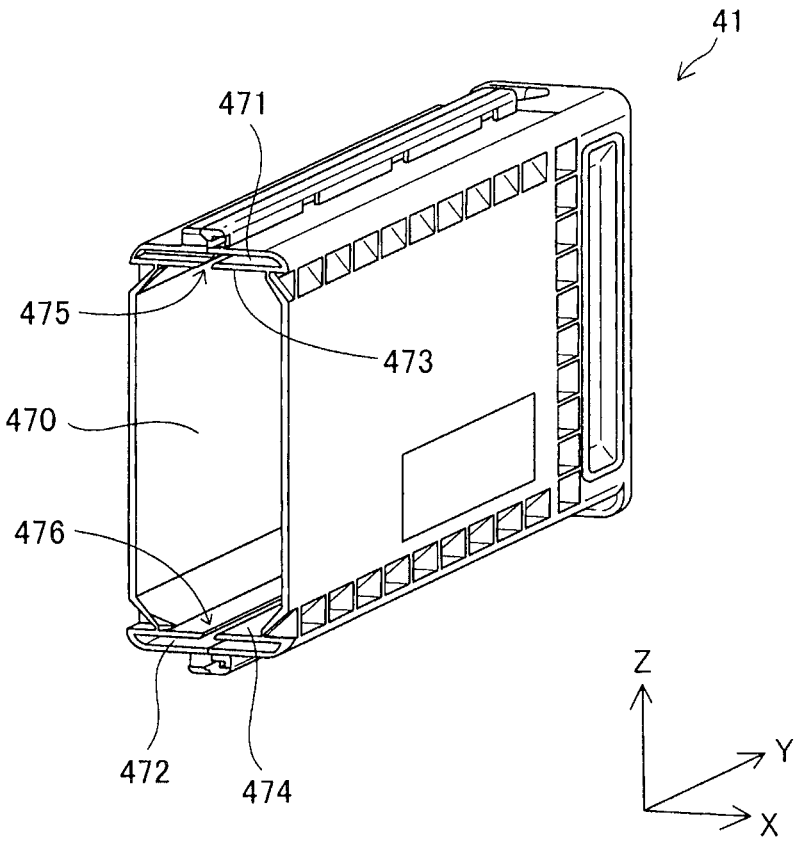


Fig. 11

Fig. 12A

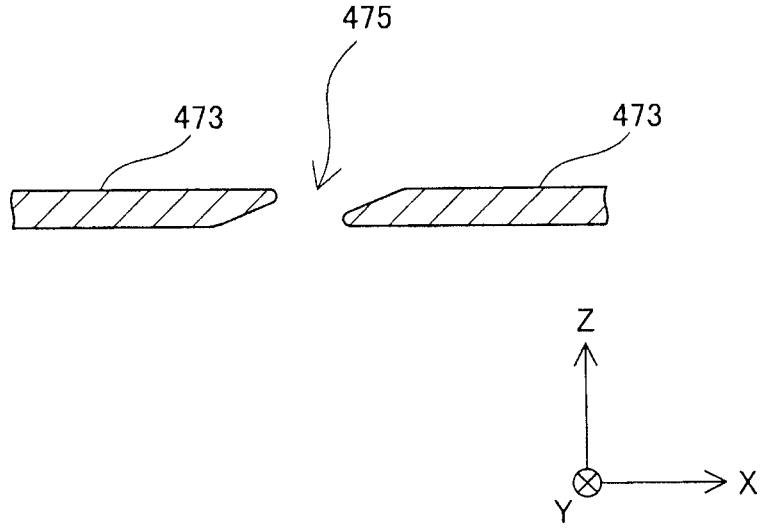


Fig. 12B

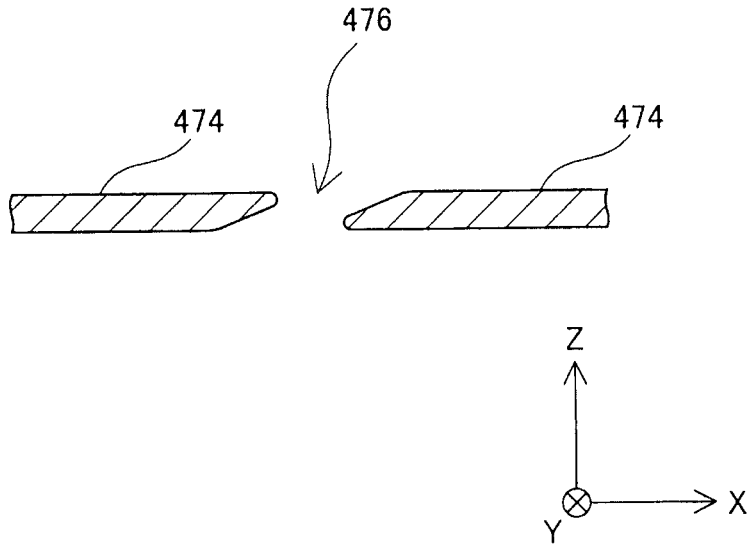


Fig. 13

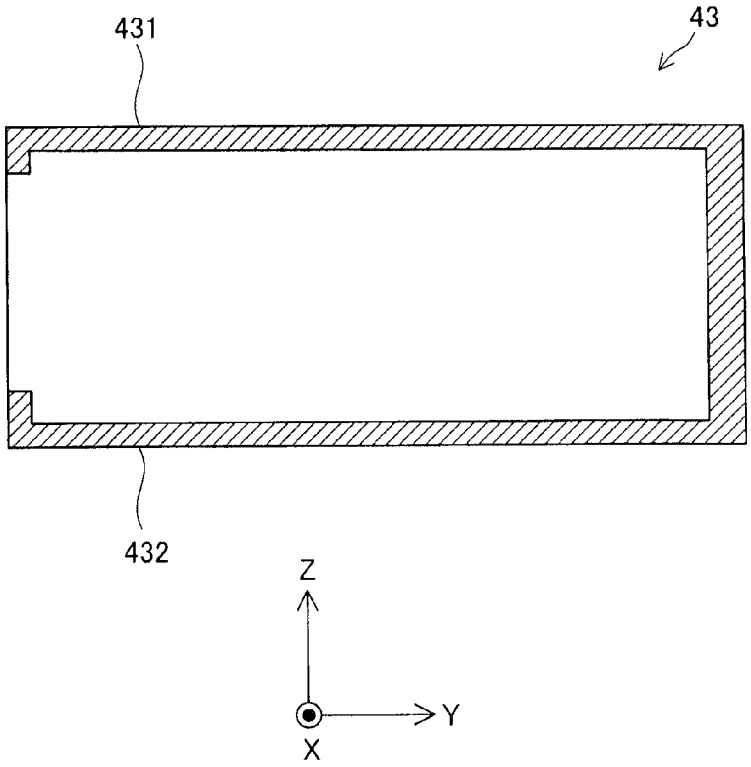
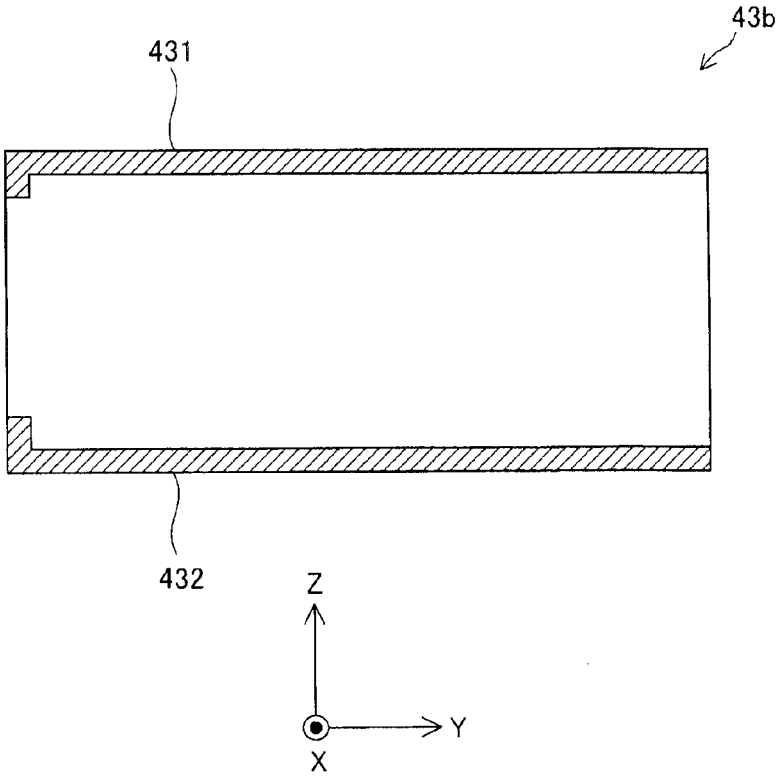


Fig. 14



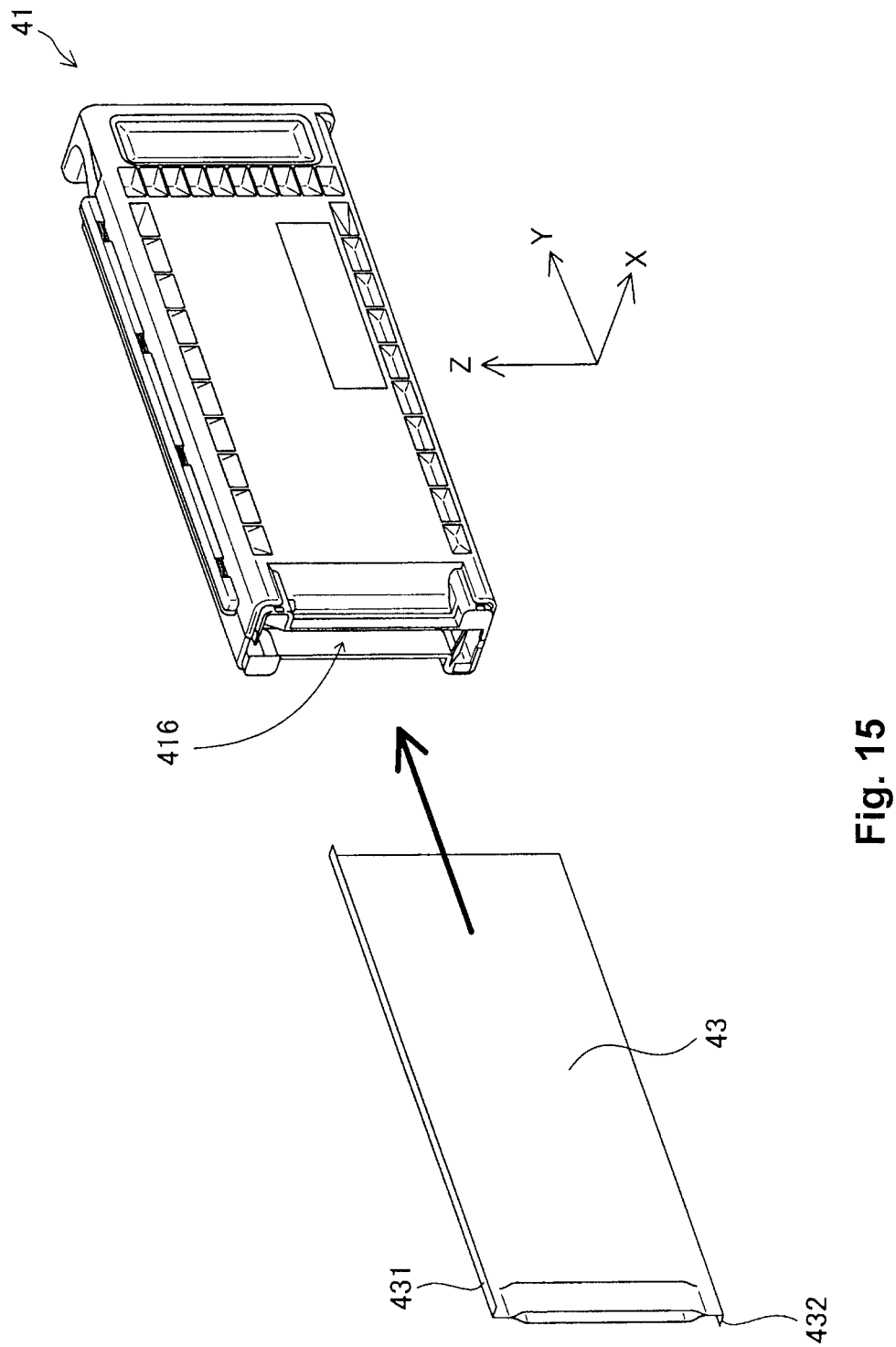


Fig. 15

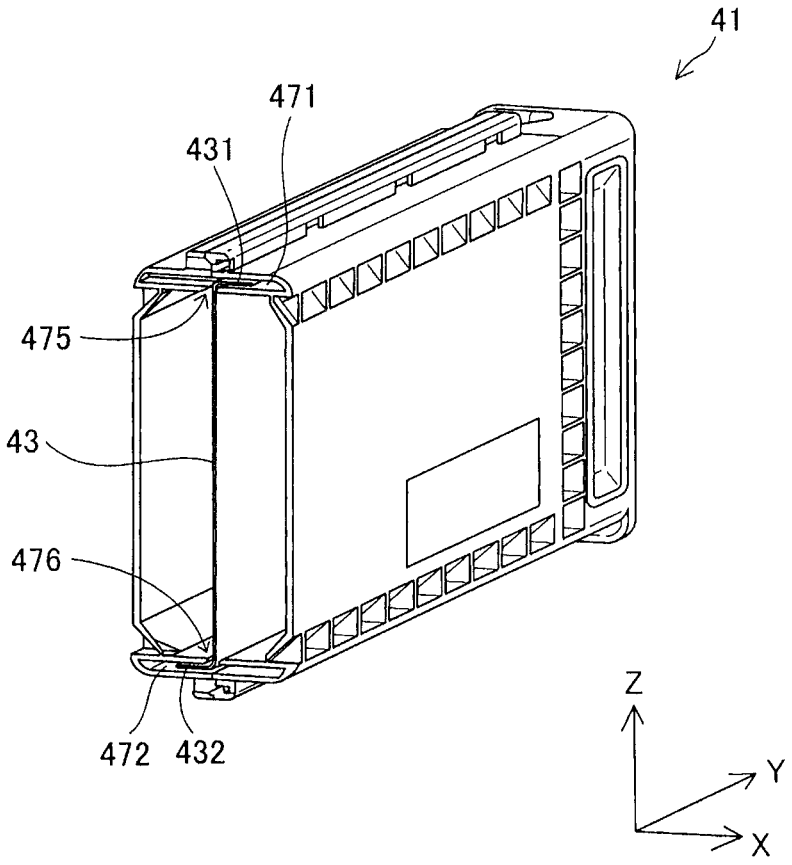


Fig. 16

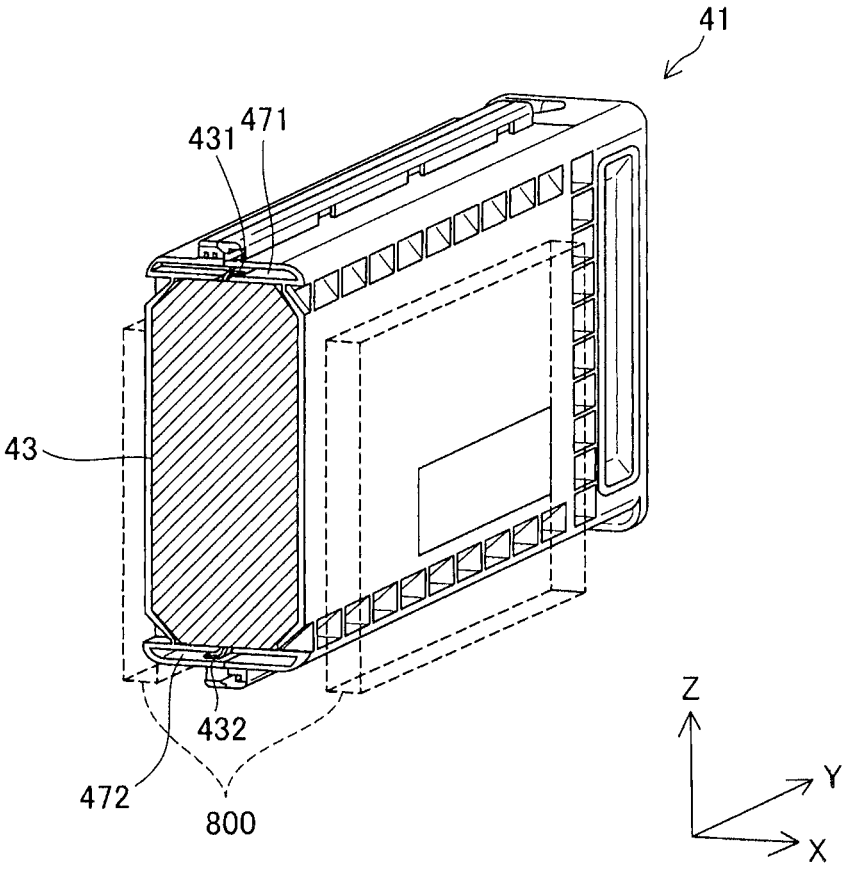


Fig. 17

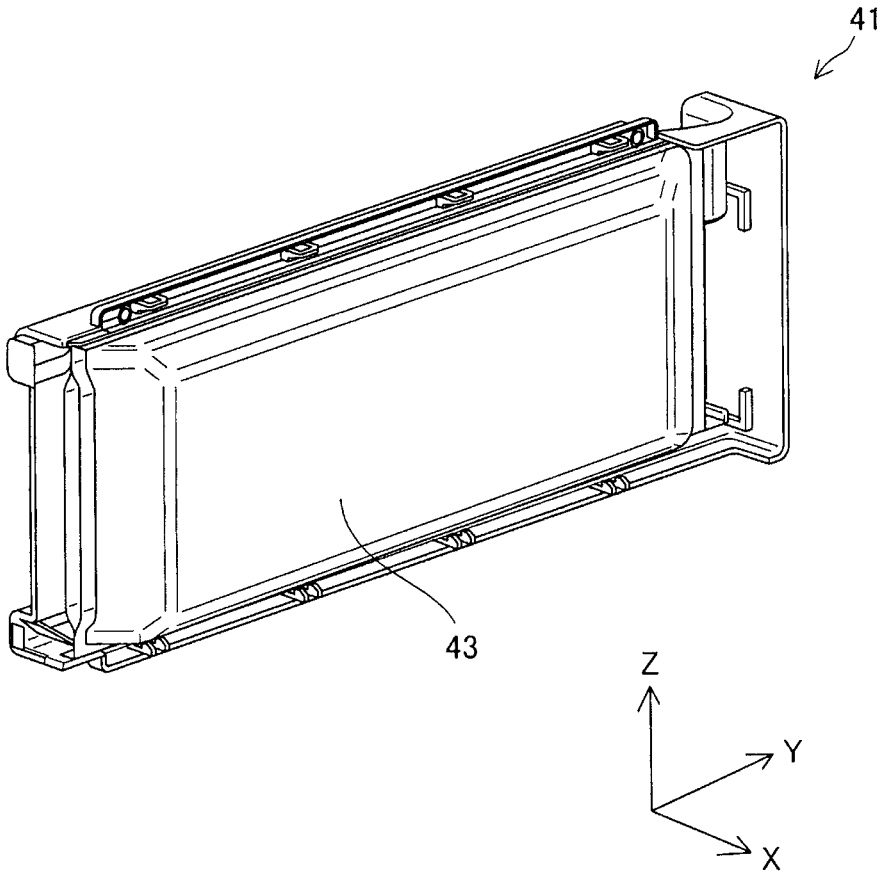


Fig. 18

LIQUID CONTAINER AND LIQUID CONSUMPTION APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to Japanese Patent Application No. 2012-005347 filed on Jan. 13, 2012, Japanese Patent Application No. 2012-013238 filed on Jan. 25, 2012, Japanese Patent Application No. 2012-022830 filed on Feb. 6, 2012, and Japanese Patent Application No. 2012-022831 filed on Feb. 6, 2012, the disclosures of which are hereby incorporated herein by reference in its entirety.

TECHNICAL FIELD

The present invention relates to a liquid container.

PRIOR ART

Typically, ink cartridges which contain ink in an inner portion are mounted in printing apparatuses which use ink as a printing material. For example, a flexible ink pack is arranged in an inner portion in the ink cartridge which is described in Japanese Unexamined Patent Application Publication No. 2007-83677 and the ink is filled into the ink pack.

SUMMARY

In the technique which is described in Japanese Unexamined Patent Application Publication No. 2007-83677, the ink cartridge is formed by interposing the ink pack between an upper case and a lower case after the ink is filled into the ink pack. However, there have been cases with this technique where the work of interposing the ink pack between the upper case and the lower case is difficult in the manufacturing of the ink cartridge when the ink is filled into the ink pack. As such, there is a demand for a technique where it is possible to efficiently manufacture ink cartridges. This problem is common to liquid containers which are able to contain various types of liquids without being limited to ink.

The present invention has been made to solve at least a portion of the problems described above and is able to be realized in the following forms or application examples.

A liquid container according to one aspect includes a liquid containing bag which is provided with a flat end portion which extends in a first direction and a case member which is provided with an opening at one end and which contains the liquid containing bag by being inserted from the opening in the first direction, wherein the case member has an end portion accommodating section which extends in the first direction and which contains at least an end portion of the liquid containing bag, a main portion accommodating section which contains a main portion of the liquid containing bag, and a partition wall which partitions the end portion accommodating section and the main portion accommodating section, and a slit, where it is possible for the end portion of the liquid containing bag to be inserted through, is formed in the partition wall along the first direction.

In this aspect, since it is possible to inject liquid into the liquid containing bag in a state where it is possible to freely insert the flat end portion of the liquid containing bag through into the slit, it is possible to suppress the generation of wrinkles or folds in the ink pack inside the case member during the injection of the liquid. As a result, it is possible to smoothly inject the liquid and it is possible to efficiently manufacture the liquid container.

In the liquid container according to the above described aspect, an end portion of the one end side of the slit and an end portion of the one end side of the end portion accommodating section are preferably linked with the opening and an end portion of the one end side of the end portion accommodating section is widened toward the opening. In this embodiment, it is possible to easily contain the end portion of the liquid container in the end portion accommodating section when the liquid containing bag is inserted inside the case member.

In the liquid container according to the above described aspects, a chamfer is preferably carried out along the first direction in a portion where the slit is formed in the partition wall. In this aspect, it is possible to easily insert the end portion of the liquid container through into the slit.

In the liquid container according to any one of the above described aspects, a length of an inner circumference along a second direction of the liquid containing bag and a length of an inner circumference along the second direction of the main portion accommodating section are preferably substantially the same. In this aspect, it is possible to fill the liquid into every corner inside the main portion accommodating section.

In the liquid container according to any one of the above described aspects, liquid is preferably injected into the liquid containing bag in a state where the end portion is accommodated in the end portion accommodating section and the main portion is accommodated in the main portion accommodating section. In this aspect, it is possible to efficiently manufacture the liquid container since the liquid is injected after the liquid containing bag is inserted inside the case member.

A liquid consumption apparatus according to another aspect includes the liquid container according to the above described aspects, and configured and arranged to consume liquid accommodated in the liquid container. In this manner, it is also possible to realize the present invention as an embodiment of the liquid consumption apparatus.

A method of manufacturing a liquid container according to another aspect includes: a step (A) for preparing a liquid containing bag, which is provided with a flat first end portion which extends in a first direction and a case member which is provided with an opening at one end, a step (B) for inserting the liquid containing bag inside the case member from the opening along the first direction, and a step (C) for injecting a liquid into the liquid containing bag after the step (B), wherein the case member has a first end portion accommodating section which extends in the first direction and which contains at least the first end portion of the liquid containing bag, a main portion accommodating section which contains a main portion of the liquid containing bag, and a first partition wall which partitions the first end portion accommodating section and the main portion accommodating section, a first slit, where it is possible for the first end portion of the liquid containing bag to be inserted through, is formed along the first direction in the first partition wall, and in the step (B), the liquid containing bag is inserted inside the case member while the first end portion of the liquid containing bag passes through the first slit along the first direction.

In this manufacturing method, it is possible to easily assemble the liquid container since the liquid containing bag is inserted inside the case member while the first end portion of the liquid containing bag passes through the first slit. In addition, it is possible to efficiently fill the liquid inside the

case member since the liquid is injected into the liquid containing bag after the liquid containing bag is inserted inside the case member.

In the method of manufacturing according to the above described aspect, the liquid containing bag preferably further has a flat second end portion which opposes the first end portion, the case member is preferably further provided with a second end portion accommodating section which contains the second end portion of the liquid containing bag, and a second partition wall which partitions the second end portion accommodating section and the main portion accommodating section, a second slit, where it is possible for the second end portion of the liquid containing bag to be inserted through is formed along the first direction in the second partition wall, the first end portion accommodating section has a flat space along the first partition wall, the second end portion accommodating section has a flat space along the second partition wall, and in the step (B), the first end portion and the second end portion are each folded back in opposite directions toward a direction which is orthogonal to the first direction, and the liquid containing bag is inserted inside the case member while the first end portion passes through the first slit and the second end portion passes through the second slit both in the first direction. In this embodiment, it is possible to easily insert the first end portion and the second end portion of the liquid containing bag into the flat first end portion accommodating section and second end portion accommodating section.

In the method of manufacturing according to the above described aspects, in the step (C), the liquid is preferably injected into the liquid containing bag in a state where the case member is interposed by a support member. In this embodiment, it is possible to spread the liquid to every corner inside the liquid containing bag since it is possible to suppress the swelling of the case member.

In addition to the liquid container, the liquid consumption apparatus, and the method of manufacturing a liquid container which are described above, it is also possible to realize the present invention using various types of embodiments such as a method of using a liquid container or a liquid consumption apparatus.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is a diagram illustrating a schematic configuration of a printing apparatus.

FIG. **2** is a detailed perspective diagram of the external appearance of a cartridge holder.

FIG. **3** is a perspective diagram of the external appearance of a cartridge.

FIG. **4** is an exploded perspective diagram of the cartridge.

FIG. **5** is a perspective diagram illustrating a configuration of an inner portion of the cartridge holder.

FIG. **6** is a perspective diagram illustrating the details of an ink introducing mechanism.

FIG. **7** is a flow chart of a method of manufacturing the cartridge.

FIG. **8** is a perspective diagram of the case member.

FIG. **9** is a diagram illustrating a cross section A-A of the case member in FIG. **8**.

FIG. **10** is a diagram illustrating a cross section B-B of the case member in FIG. **8**.

FIG. **11** is a diagram illustrating a cross sectional configuration of the case member along the line C-C of FIG. **8**.

FIGS. **12**A and **12**B are diagrams illustrating an enlarged cross section of the periphery of a slit.

FIG. **13** is a side surface diagram of an ink pack.

FIG. **14** is a diagram illustrating another embodiment of the ink pack.

FIG. **15** is a diagram illustrating a state in which the ink pack is inserted in the case member.

FIG. **16** is a diagram illustrating a configuration of an inner portion of the case member.

FIG. **17** is a diagram illustrating a state in which ink is filled into the ink pack.

FIG. **18** is a diagram illustrating a state in which ink is filled into the ink pack.

DESCRIPTION OF THE EMBODIMENTS

FIG. **1** is a diagram illustrating a schematic configuration of an ink jet type printing apparatus in which a cartridge is mounted as a liquid container. XYZ axes which are orthogonal to each other are drawn in FIG. **1**. The XYZ axes of FIG. **1** correspond to the XYZ axes of other diagrams. The XYZ axes are given according to necessity for the diagrams which are illustrated below. In the present embodiment, the Z axis is the vertical direction (the direction of gravity), the Y axis is an attaching and detaching direction of a cartridge **40** with regard to a cartridge holder **60**, and the X axis is a direction in which the plurality of cartridges **40** are lined up in the usage posture of a printing apparatus **10**. More specifically, the +Z axis direction is the vertically upward direction, the −Z axis direction is the vertically downward direction, the +Y axis direction is a taking out direction of the cartridge **40**, the −Y axis direction is an insertion direction of the cartridge **40**, the +X axis direction is a direction of the side surface on which a predetermined label LB (refer to FIG. **4**) is attached to the cartridge **40**, and the −X axis direction is a direction of the rear surface thereof. Below, there are cases where the +Z axis direction is up, the −Z axis direction is down, the +Y axis direction is forward, and the −Y axis direction is backward. Here, the Z axis direction is also a direction in which an ink introducing needle **730** and a terminal **712** shown in FIG. **6** are lined up. The +Z axis direction is a direction from the ink introducing needle **730** to the terminal **712** and the −Z axis direction is the opposite direction thereto. In addition, the +Y axis direction is also a direction (refer to FIG. **15**) in which an ink pack **43** is inserted in a case member **41** in a method of manufacturing the cartridge **40** which is described later. The Y axis direction corresponds to the "first direction" of the present application and the Z axis direction corresponds to the "second direction" of the present application.

The printing apparatus **10** which is the liquid consumption apparatus has an external shape which is substantially a box shape. A front surface cover **11** is provided in substantially the center of the front surface of the printing apparatus **10** and a plurality of operation buttons **15** are provided at the X axis direction side thereof. The front surface cover **11** is pivotally supported at the lower end side and when the upper end side falls toward the front, a paper discharge port **12** where printing paper is discharged is revealed. In addition, a paper feeding tray which is not shown in the diagram is provided at the rear surface side of the printing apparatus **10**. When the printing paper is set in the paper feeding tray and the operation buttons **15** are operated, the printing paper is fed from the paper feeding tray and the printing paper is discharged from the paper discharge port **12** after images or the like are printed on the surface in the inner portion.

An upper surface cover **14** is provided at the upper surface side of the printing apparatus **10**. The upper surface cover **14** is pivotally supported at the rear side, and when the upper

surface cover **14** is opened by being lifted up to the front, it is possible to confirm the state of the inner portion of the printing apparatus **10** or perform repairs or the like to the printing apparatus **10**.

An ejection head **20** which forms ink dots on the printing paper while reciprocating in a main scanning direction and a driving mechanism **30** which reciprocates the ejection head **20** are mounted in the inner portion of the printing apparatus **10**. A plurality of ejection nozzles are provided at the bottom surface side (the side which faces the printing paper) of the ejection head **20** and ink is ejected toward the printing paper from the ejection nozzles.

The ink which is ejected from the ejection nozzles is contained in the cartridge **40**. The cartridge **40** is loaded into the cartridge holder **60** which is provided at a separate position to the ejection head **20**. The ink inside the cartridge **40** is supplied to the ejection head **20** through an ink tube **24**. In the printing apparatus **10** of the present embodiment, a cartridge replacement cover **13** which is pivotally supported at the lower end side is provided to the immediate right of the front surface cover **11**. It is possible to attach and detach the cartridge **40** to and from the cartridge holder **60** by the upper end side of the cartridge replacement cover **13** being made to fall to the front.

It is possible for the printing apparatus **10** to print color images using four types of ink which are cyan, magenta, yellow, and black. Ejection nozzles are provided for every type of ink in the ejection head **20**. Ink inside the corresponding cartridge **40** is supplied to the respective ejection nozzles through the ink tubes **24** which are provided for every type of ink. Here, in the present embodiment, the printing apparatus **10** performs printing using four types of ink, but the printing may be performed using five or more types or three or less types of ink.

The driving mechanism **30** which reciprocates the ejection head **20** is provided with a timing belt **32** where a plurality of tooth shapes are formed on the inner side, a driving motor **34** for driving the timing belt **32**, and the like. A portion of the timing belt **32** is fixed to the ejection head **20**. When the timing belt **32** is driven, the ejection head **20** is reciprocated in the main scanning direction while being guided by a guide rail which extends in the main scanning direction and which is not shown in the diagram.

A region which is referred to as the home position is provided at a position which is outside the printing region where the ejection head **20** is moved in the main scanning direction. A maintenance mechanism is mounted at the home position. The maintenance mechanism is provided with a cap **80** which is pressed against a surface (a nozzle surface) where the ejection nozzles are formed at the bottom surface side of the ejection head **20** and which forms a closed space so as to surround the ejection nozzles, an elevating mechanism which is not shown in the diagram and which raises and lowers the cap **80** in order to push against the nozzle surface of the ejection head **20**, a suction pump (which is not shown in the diagram) which introduces a negative pressure into the closed space which is formed by the cap **80** being pressed against the nozzle surface of the ejection head **20**, and the like.

A paper feeding mechanism, which is not shown in the diagram for feeding the printing paper, and a control section **16**, which controls the operation of the entire printing apparatus **10**, are mounted in the inner portion of the printing apparatus **10**. The control section **16** is provided with a CPU, a ROM, and a RAM. An operation where the ejection head **20** is reciprocated, an operation where the printing paper is fed, an operation where ink is ejected from the ejection nozzles, an operation where maintenance is performed so that correct printing is possible, and the like are all controlled by the control section **16**.

FIG. **2** is a detailed perspective diagram of the external appearance of the cartridge holder **60**. A slot **61** where the cartridge **40** is inserted from the +Y axis direction to the −Y axis direction is provided in the cartridge holder **60**. Guiding grooves **62** are provided for each of the cartridges **40** along the Y axis direction at the surface (the upper surface) of the +Z axis direction side and the surface (the bottom surface) of the Z axis direction side in the slot **61**. Rail sections **413** and **414** (FIG. **3**), which are provided in each of the surface (the upper surface) of the +Z axis direction side and the surface (the bottom surface) of the −Z axis direction side of the cartridge **40**, fit into each of the guiding grooves **62** so as to slide when the cartridge **40** is mounted.

A fixing lever **63** for fixing the cartridge **40** is provided for every cartridge **40** in the upper portion of the entrance of the slot **61**. When the fixing lever **63** is slid in the −Z axis direction, the fixing lever **63** fits together with a handle **415** (FIG. **3**) of the cartridge **40** and the movement of the cartridge **40** in the +Y axis direction is regulated.

A pump unit **7** for suctioning the ink from the cartridge **40** is provided for every cartridge **40** in the end portion in the −Y axis direction of the cartridge holder **60**. A pump driving motor **8** for driving the pump unit **7** is connected to each of the pump units **7**. The ink which is suctioned by the pump unit **7** is supplied to the ejection head **20** through the ink tube **24**.

FIG. **3** is a perspective diagram of the external appearance of the cartridge **40**. In addition, FIG. **4** is an exploded perspective diagram of the cartridge **40**. The cartridge **40** is provided with the case member **41**, a cover member **42**, the flexible ink pack **43**, and a liquid flow path member **44**. The ink pack **43** corresponds to the "liquid containing bag" of the present application. The ink pack **43** is a so-called pillow type bag where the liquid flow path member **44** is fixed in the opening of the −Y axis direction. An upper end portion **431** (the end portion of +Z axis direction), a lower end portion **432** (the end portion of the −Z axis direction), and an end portion in the +Y axis direction of the ink pack **43** are formed with a flat shape.

The case member **41** is provided with a right case **411** and a left case **412**. The handle **415** is provided at the end portion of the case member **41** in the +Y axis direction. The label LB is attached to the surface of the +X axis direction side of the right case **411**. Rail portions **413** and **414** are formed along the Y axis direction on the surface in the +Z axis direction and the surface in the −Z axis direction in the case member **41**. The rail portions **413** and **414** fit into the guiding grooves **62** of the cartridge holder **60** which is shown in FIG. **2** when the cartridge **40** is mounted inside the cartridge holder **60**.

The liquid flow path member **44** is a member for supplying the ink which is filled into the ink pack **43** to the printing apparatus **10**. The liquid flow path member **44** is adhered (fixed) to the opening portion of the ink pack **43** in the −Y axis direction. The liquid flow path member **44** is contained in the inner portion of the cover member **42** when the cover member **42** is attached to the opening portion of the end portion of the case member **41** in the −Y axis direction. The ink pack **43** is contained between the right case **411** and the left case **412** which configure the case member **41**.

An ink filling port **441**, an ink supply pipe **443**, and an ink detection chamber **442** are disposed in this order from the end portion in the +Z axis direction toward the −Z axis direction on the surface (the surface of the opposite side to the ink pack **43**) of the −Y axis direction side of the liquid

flow path member **44**. The ink filling port **441** is linked to the inner portion of the ink pack **43** and is provided in order to fill the ink into the ink pack **43**. After the ink is filled into the ink pack **43** through the ink filling port **441**, the ink filling port **441** is sealed.

The ink detection chamber **442** is linked to the inner portion of the ink pack **43** and is used in order to detect the state of the ink remaining inside the ink pack **43**. A flexible film member **491** is provided on the surface of the −Y axis direction side of the ink detection chamber **442**. A spring **493** is arranged through a pressure receiving member **494** between the film member **491** and the bottom surface (the inner surface of the +Y axis direction side) of the ink detection chamber **442**. Ink flows in from the ink pack **43** into the ink detection chamber **442** through a check valve **492**. A plate shaped sensor lever **495** is arranged at the −Y axis direction side of the film member **491**. The end portion in the −Z axis direction of the sensor lever **495** is fixed to the liquid flow path member **44** so as to freely rotate. A contact section **496** is provided at the surface of the −Y axis direction side of the end portion in the +Z axis direction of the sensor lever **495**. The end portion in the +Y axis direction of a rod member **720** (FIG. **6**) which is provided at the printing apparatus **10** side abuts against the contact section **496** through a sensor hole **423** which is provided in the cover member **42**. For example, in a case where ink is present in a predetermined amount or more in the ink pack **43**, the total of the pressure of the ink inside the ink detection chamber **442** (the pressure inside the ink pack) and the force of the spring **493** exceeds the pressing force of the rod member **720** in the +Y axis direction. As a result, the film member **491**, the sensor lever **495**, and the rod member **720** are displaced in the −Y axis direction. On the other hand, in a case where ink is less than a predetermined amount (in a case where the ink has ended), the total of the pressure of the ink inside the ink detection chamber **442** (the pressure inside the ink pack) and the force of the spring **493** is less than the pressing force of the rod member **720** in the +Y axis direction. As a result, the film member **491**, the sensor lever **495**, and the rod member **720** are displaced in the +Y axis direction.

The ink supply pipe **443** is used for supplying ink to the printing apparatus **10**. The ink supply pipe **443** is linked to the ink detection chamber **442** by a flow path which is formed in the inner portion of the liquid flow path member **44**. As a result, ink flows in from inside the ink pack **43** into the ink supply pipe **443** through the ink detection chamber **442**. Here, in the present embodiment, the cartridge **40** is provided with the ink detection chamber **442**, but may be configured without the ink detection chamber **442** being provided. In this case, the ink supply pipe **443** is directly linked to the inside of the ink pack **43**.

A substrate **50**, a supply pipe hole **421**, and the sensor hole **423** are disposed in this order from the end portion in the +Z axis direction toward the −Z axis direction in the cover member **42** on an abutting surface **425** of the −Y axis direction side which abuts against the printing apparatus **10** side.

The substrate **50** is inclined upward and attached to a concave portion **424** which is provided in the end portion in the +Z axis direction of the cover member **42**. A storage device which is not shown in the diagram is mounted at the rear surface (the surface of the +Y axis direction side) of the substrate **50**. In addition, a plurality of terminals **51** (FIG. **3**) which are electrically connected to the storage device are provided at the surface (the surface of the −Y axis direction side) of the substrate **50**. When the cartridge **40** is mounted on the cartridge holder **60**, the terminal **712** (FIG. **6**) of the printing apparatus **10** side which is provided in the cartridge holder **60** comes into contact with the terminals **51** of the surface of the substrate **50**. By doing so, it is possible for the control section **16** of the printing apparatus **10** to access the storage apparatus which is provided in the cartridge **40**.

The ink supply pipe **443** which is provided in the liquid flow path member **44** is exposed inside the supply pipe hole **421**. The supply pipe hole **421** is recessed in the +Y axis direction and has a predetermined depth. The inner wall of the downward direction (the −Z axis direction) of the supply pipe hole **421** is inclined to rise up in the +Z axis direction further heading from the −Y axis direction to the +Y axis direction. In other words, the inner wall of the downward direction (the −Z axis direction) of the supply pipe hole **421** is inclined to fall in the −Z axis direction further heading from the +Y axis direction to the −Y axis direction. The supply pipe hole **421** is positioned vertically above the contact section **496** of the sensor lever **495** described above.

The rod member **720** (FIG. **6**) which is provided in the printing apparatus **10** is inserted in the sensor hole **423**. As described above, when the cartridge **40** is mounted in the cartridge holder **60**, the end portion in the +Y axis direction of the rod member **720** abuts against the contact section **496** of the sensor lever **495** which is provided in the liquid flow path member **44** through the sensor hole **423**.

FIG. **5** is a perspective diagram illustrating a configuration of an inner portion of the cartridge holder **60**. FIG. **5** shows a state in which a lid **64** and side plates **65** and **66** of the cartridge holder **60** are removed from the perspective diagram shown in FIG. **2**. As shown in FIG. **5**, ink introducing mechanisms **70** are set up for every cartridge **40** to be adjacent to the end portion in the −Y axis direction of the guiding groove **62** which is provided on a bottom plate **67** in the inner portion of the cartridge holder **60**. The pump unit **7** is connected to each ink introduction mechanism **70**. An ink absorbing material **69** is arranged at the bottom portion of the ink introducing mechanism **70**.

FIG. **6** is a perspective diagram illustrating the details of the ink introducing mechanism **70**. The ink introducing mechanism **70** is provided with a substrate contacting section **710**, the rod member **720**, the ink introducing needle **730**, and an ink receiving member **740**.

The substrate contacting section **710** is provided at the end portion in the +Z axis direction of the ink introducing mechanism **70**. When the cartridge **40** is mounted in the cartridge holder **60**, the substrate contacting section **710** has the terminal **712** which electrically contacts with the terminals **51** on the substrate **50** which is provided in the cartridge **40**. A connector **714** is provided on the rear surface side of the terminal **712**. The connector **714** is connected to the control section **16** through a predetermined cable.

The rod member **720** is provided at substantially the center portion in the Z axis direction of the ink introducing mechanism **70**. When the cartridge **40** is mounted in the cartridge holder **60**, the end portion in the +Y axis direction of the rod member **720** is inserted into the sensor hole **423** and comes into contact with the contact section **496** of the sensor lever **495** which is provided in an ink supply member **480**. The end portion of the −Y axis direction side of the rod member **720** is positioned inside the ink introducing mechanism **70**, and the position thereof is detected by a photo sensor which is provided inside the ink introducing mechanism **70**. The control section **16** detects the state of the ink remaining inside the cartridge **40** according to the changes in the position of the end portion of the rod member **720** in the −Y axis direction which are detected by the photo sensor.

The ink introducing needle **730** is provided between the substrate contacting section **710** and the rod member **720** in the Z axis direction. When the cartridge **40** is mounted in the cartridge holder **60**, the ink introducing needle **730** is inserted (connected) to the ink supply pipe **443** which is provided in the cartridge **40**. An ink introducing port is provided in the lower portion of the tip end (the end portion of the +Y axis direction) of the ink introducing needle **730**. The ink inside the cartridge **40** is introduced inside the printing apparatus **10** through the ink introducing port.

The ink receiving member **740** is a member for catching the ink which drips from the ink introducing port of the ink introducing needle **730** when the cartridge **40** is removed. The ink receiving member **740** is attached to the ink introducing mechanism **70** so as to interpose a spring **750**. The ink receiving member **740** is pressed in the +Y axis direction by the spring **750** in a state where the cartridge **40** is not attached to the cartridge holder **60**. The ink receiving member **740** is configured by integrally forming a substantially circular abutting section **741**, a receiving tray **742**, and a drain member **743**. An opening **744** is provided in the abutting section **741** to span across the position of the base end (the end portion of the −Y axis direction) of the receiving tray **742** from the center of the abutting section **741** toward the −Z axis direction. The ink introducing needle **730** protrudes from the opening **744**. The receiving tray **742** is provided at the lower portion of the opening **744** in the surface of the +Y axis direction side of the abutting section **741**. In addition, the drain member **743** which extends downward from the abutting section **741** is provided in the lower portion of the abutting section **741**. The drain member **743** is bent to the −X axis direction side in order to avoid the rod member **720** which is positioned under the ink introducing needle **730**. When the ink which has dripped from the ink introduction port of the ink introducing needle **730** is caught by the receiving tray **742**, the ink is transferred in the drain member **743** and absorbed by the ink absorbing material **69** which is provided in the bottom plate **67** of the cartridge holder **60**.

Above, the configuration of the printing apparatus **10** and the cartridge **40** has been described. Below, the method of manufacturing the cartridge **40** is described along with the detailed configuration of the case member **41**.

FIG. **7** is a flow chart of a method of manufacturing the cartridge **40**. In the manufacturing method in the present embodiment, first, the case member **41** and the ink pack **43** are prepared (step S**10**). Specifically, the case member **41**, where the right case **411** and the left case **412** are assembled, together and the ink pack **43**, where the liquid flow path member **44** is attached and which is not filled with ink, are prepared.

FIG. **8** is a perspective diagram of the case member **41** which is prepared in step S**10** described above. An opening **416** which extends in the Z axis direction is provided in the central portion in the end surface in the Y axis direction of the case member **41**. The upper end (the end portion in the +Z axis direction) of the opening **416** is extended in the +X axis direction and the lower end (the end portion in the −Z axis direction) is extended in the −X axis direction.

FIG. **9** is a diagram illustrating a cross section A-A of the case member **41** in FIG. **8**. That is, FIG. **9** is a diagram where the right case **411** (FIG. **4**) is viewed from the −X axis direction side. As shown in FIG. **9** and FIG. **8**, an upper side inclined wall **417**, which is inclined to the +Z axis direction side while heading toward the +Y axis direction, is provided in the upper end of the opening **416** of the right case **411**.

FIG. **10** is a diagram illustrating a cross section B-B of the case member **41** in FIG. **8**. That is, FIG. **10** is a diagram where the left case **412** (FIG. **4**) is viewed from the +X axis direction side. As shown in FIG. **10** and FIG. **8**, a lower side inclined wall **418**, which is inclined to the −Z axis direction side while heading toward the +Y axis direction, is provided in the lower end of the opening **416** of the left case **412**.

FIG. **11** is a diagram illustrating a cross sectional configuration of the case member **41** along the line C-C of FIG. **8**. The inner portion space of the case member **41** is partitioned into a main portion containing section **470** (one example of a main portion accommodating section) where the main portion of the ink pack **43** is contained, an upper side end portion containing section **471** (one example of an end portion accommodating section) where the flat upper end portion **431** of the ink pack **43** is contained, and a lower side end portion containing section **472** (one example of an end portion accommodating section) where the flat lower end portion **432** of the ink pack **43** is contained. The main portion of the ink pack **43** is a portion which is filled with ink and is the portion which excludes the flat end portions.

The main portion containing section **470** is positioned at the center of the inner portion of the case member **41**. The upper side end portion containing section **471** is adjacent to the +Z axis direction side of the main portion containing section **470**. The lower side end portion containing section **472** is adjacent to the −Z axis direction side of the main portion containing section **470**. The main portion containing section **470** and the upper side end portion containing section **471** are partitioned by an upper side partition wall **473** along the XY plane. The main portion containing section **470** and the lower side end portion containing section **472** are partitioned by a lower side partition wall **474** along the XY plane. Slits **475** and **476** are respectively provided along the Y axis direction in the central portions in the upper side partition wall **473** and the lower side partition wall **474**. The upper side end portion containing section **471** is a space with a plate shape along the upper side partition wall **473**. In addition, the lower side end portion containing section **472** is a space with a plate shape along the upper side partition wall **474**. The thicknesses of the upper side end portion containing section **471** and the lower side end portion containing section **472** in the Z axis direction and the widths of the slits **475** and **476** in the X axis direction are greater than the thicknesses of the flat upper end portion **431** or the lower end portion **432** of the ink pack **43**.

FIG. **12**A is a diagram illustrating an enlarged cross section of the periphery of the slit **475**. A chamfering process is carried out in the slit **475** which is formed in the upper side partition wall **473**. Specifically, the boundary between the portion of the −X axis direction side out of the two portions of the upper side partition wall **473** which sandwich the slit **475** and the slit **475** is subjected to chamfering along the Y axis direction of the upper side partition wall **473** such that the corner portion of the lower side (the -Z axis direction side) is inclined. In addition, the boundary between the portion of the +X axis direction side out of the two portions of the upper side partition wall **473** which sandwich the slit **475** and the slit **475** is subjected to chamfering on the upper side partition wall **473** along the Y axis direction such that the corner portion of the upper side (the +Z axis direction side) is inclined. That is, the opposing surfaces of the upper side partition wall **473** which is divided by the slit **475** are each inclined in the same direction so as to become parallel. In a case where the upper end portion **431** of the ink pack **43** is inserted into the slit **475** in a manufacturing process which will be described later if the slit **475** is formed in the upper

side partition wall **473**, it is easy for the upper end portion **431** of the ink pack **43** to bend to the +X axis direction side where the upper side inclined wall **417** is formed. Here, in the present embodiment, all of the opposing surfaces of the upper side partition wall **473** which is divided by the slit **475** are chamfered, but only one may be chamfered.

FIG. **12**B is a diagram illustrating an enlarged cross section of the periphery of the slit **476**. The same type of chamfering as that for the slit **475** which was formed in the upper side partition wall **473** is also carried out for the slit **476** which was formed in the lower side partition wall **474**. In a case where the lower end portion **432** of the ink pack **43** is inserted into the slit **476** in a manufacturing process which will be described later if the slit **476** is formed in the lower side partition wall **474**, it is easy for the lower end portion **432** of the ink pack **43** to bend to the −X axis direction side where the lower side inclined wall **418** is formed. Here, in the present embodiment, all of the opposing surfaces of the lower side partition wall **474** which is divided by the slit **476** are chamfered, but only one may be chamfered.

The main portion containing section **470** shown in FIG. **11** is linked to the opening **416** of the −Y axis direction end surface of the case member **41**. In the present embodiment, the inner circumference of the XZ cross section of the main portion containing section **470** has a substantially hexagonal shape. In the present embodiment, the length of the outer circumference in the XZ cross section of the ink pack **43** is longer than the length of the inner circumference in the XZ cross section of the main portion containing section **470** by the amount where the flat upper end portion **431** and lower end portion **432** are formed. In addition, the length of the inner circumference in the XZ cross section of the main portion containing section **470** and the length of the inner circumference in the XZ cross section of the ink pack **43** are substantially equal. Here, in the present embodiment, the inner circumference of the XZ cross section of the main portion containing section **470** is a substantially hexagonal shape, but the inner circumference may be a substantially rectangular shape, or may be another polygonal shape. In addition, for example, the corner portion may be configured by a curve.

In the upper side partition wall **473** which forms the upper side end portion containing section **471**, out of the two portions which sandwich the slit **475**, the upper surface of the side (the +X axis direction side), in which the upper side inclined wall **417** is formed, is connected to the upper surface of the upper side inclined wall **417** (refer to FIGS. **8** and **9**). In addition, in the upper side partition wall **474** which forms the lower side end portion containing section **471**, out of the two portions which sandwich the slit **476**, the lower surface of the side (the −X axis direction side), in which the lower side inclined wall **418** is formed, is connected to the lower surface of the lower side inclined wall **418** (refer to FIGS. **8** and **10**).

FIG. **13** is a side surface diagram of the ink pack **43** which is prepared in step S**10**. The ink pack **43** is a so-called pillow type bag. In the present embodiment, the ink pack **43** is formed by bonding together two flexible film members with the upper end portion **431**, the lower end portion **432**, and the end portion in the +Y axis direction. The hatched portion in the drawing shows a location where two film members are adhered and flattened. As shown in FIG. **4**, the liquid flow path member **44** is fixed (adhered) to the end portion in the −Y axis direction of the ink pack **43**.

FIG. **14** is a diagram illustrating another embodiment of the ink pack. An example where two flexible film members are bonded together is shown in FIG. **13**, but an example where an ink pack **43***b* is formed by folding and joining one film member which is long in the Y axis direction with the central portion thereof is shown in FIG. **14**. In the present embodiment, the ink pack shown in either of FIG. **13** or FIG. **14** may be prepared.

In the step S**10** shown in FIG. **7**, when the case member **41** and the ink pack **43** which are described above are prepared, next, the ink pack **43** is inserted into the case member **41** (step S**20**).

FIG. **15** is a diagram illustrating a state in which the ink pack **43** is inserted in the case member **41**. Illustration of the liquid flow path member **44** is omitted in FIG. **15**. In the step S**20** which is described above, the end portion in the +Y axis direction of the ink pack **43** is inserted from the opening **416** which is formed in the end surface in the −Y axis direction of the cartridge **40**. At this time, the upper end portion **431** of the ink pack **43** is folded back in the +X axis direction and the lower end portion **432** of the ink pack **43** is folded back in the opposite direction to the upper end portion **431**, that is, in the −X axis direction. By doing so, the folded back portion of the upper end portion **431** is inserted along the upper side inclined wall **417** which is provided in the upper portion of the opening **416** of the cartridge **40** and the folded back portion of the lower end portion **432** is inserted along the lower side inclined wall **418** which is provided in the lower portion of the opening **416** of the cartridge **40**.

FIG. **16** is a diagram illustrating a configuration of an inner portion of the case member **41** in a state where the ink pack **43** is inserted into the case member **41**. FIG. **16** illustrates a cross section C-C of the case member **41** in FIG. **8**. As shown in FIG. **16**, when the ink pack **43** is inserted into the case member **41**, the upper end portion **431** of the ink pack **43** passes through the slit **475** and is contained in the space at the +X axis direction side of the upper side end portion containing section **471** in the case member **41** and the lower end portion **432** passes through the slit **476** and is contained in the space at the −X axis direction side of the lower side end portion containing section **472**. The main portion of the ink pack **43** is contained in the main portion containing section **470**. In this manner, the ink pack **43** is folded back into an S shape and contained in the case member **41**.

In step S**20** shown in FIG. **7**, when the ink pack **43** is inserted into the case member **41**, ink is filled (step S**30**) inside the ink pack **43** through the ink filling port **441** (FIG. **4**).

FIG. **17** and FIG. **18** are diagrams illustrating a state in which ink is filled into the ink pack **43**. FIG. **17** illustrates a cross section C-C of the case member **41** in FIG. **8**. FIG. **18** illustrates a state where the right case **411** is removed from the case member **41**. The portion with hatching in FIG. **17** illustrates a portion which is filled with ink. As shown in FIG. **17** and FIG. **18**, when the ink is filled into the ink pack **43**, the ink pack **43** swells along the inner wall of the case member **41** and the ink spreads to almost all of the space inside the main portion containing section **470**. In the present embodiment, the upper end portion **431** of the ink pack **43** remains inserted into the slit **475** and the lower end portion **432** also remains inserted into the slit **476** even when the ink is filled into the ink pack **43**. In this manner, if the upper end portion **431** and the lower end portion **432** of the ink pack **43** remain inserted into the slits **475** and **476** even after the filling of the ink, the upper end portion **431** and the lower end portion **432** of the ink pack **43** are contained once more in the upper side end portion containing section **471** and the lower side end portion containing section **472** as shown in FIG. **16** even in a case where the amount of ink

remaining inside the ink pack **43** is reduced in accompaniment with the consumption of the ink by the printing apparatus **10**. As a result, the folding back of the ink pack **43** into the main portion containing section **470** or the generating of wrinkles is suppressed. As a result, since ink remaining in the folded back portion or a wrinkled portion is suppressed, it is possible to consume the ink without waste.

When the ink is filled into the ink pack **43** in the step S**30**, it is preferable that support members **800** which have higher rigidity than the case member **41** be arranged at each of the surface of the +X axis direction side and the surface of the −X axis direction side of the case member **41**. By arranging the support members **800**, the ink pack **43** is suppressed from swelling excessively in the X axis direction in which swelling most easily occurs in accompaniment with the filling operation of the ink, and it is possible to spread the ink to every corner in the Z axis direction and the Y axis direction. As shown in FIG. **17**, for example, the support members **800** are configured by two metal plates which are opposed and a configuration is possible in which the cartridge **40** is interposed therebetween. In addition, it is possible for the support members **800** to have a configuration with a box shape in which one surface or two surfaces which are opposed are opened, and for there to be a configuration where the cartridge **40** is fitted in from this opening.

In the step S**30** shown in FIG. **7**, when ink is filled into the ink pack **43**, the ink filling port **441** is sealed (step S**40**). In the manufacturing method of the present embodiment, sealing is performed by carrying out thermal caulking on the ink filling port **441**. When the ink filling port **441** is sealed, lastly, the cover member **42** is attached to the case member **41** and the series of manufacturing processes of the cartridge **40** is finished.

According to the cartridge **40** of the present embodiment which is described above, the inner portion of the case member **41** of the cartridge **40** is partitioned into three chambers of the main portion containing section **470**, the upper side end portion containing section **471**, and the lower side end portion containing section **472**, and the slits **475** and **476** are provided in the upper side partition wall **473** and the lower side partition wall **474**, which partition these chambers, along the direction in which the ink pack **43** is inserted in the inner portion of the case member **41**. As a result, it is possible to easily contain the ink pack **43** inside the case member **41** by inserting the flat upper end portion **431** and the lower end portion **432** of the ink pack **43** through into the slits **475** and **476** during the manufacturing of the cartridge **40**. In addition, in the present embodiment, since the injecting of the ink is performed in a state where it is possible for the upper end portion **431** and the lower end portion **432** of the ink pack **43** to be freely inserted through into the slits **475** and **476** in the Z axis direction, it is possible to inject the ink into every corner without generating wrinkles or folding in the ink pack **43**.

In addition, in the present embodiment, the upper side inclined wall **417** which is connected to the upper side partition wall **473** and the lower side inclined wall **418** which is connected to the lower side partition wall **474** are provided in the opening **416** of the case member **41** where the ink pack **43** is inserted. As a result, the opening connected to the upper side end portion containing section **471** and the lower side end portion containing section **472** becomes wider toward the opening **416**. As a result, it is possible to smoothly insert the upper end portion **431** and the lower end portion **432** of the ink pack **43** inside the upper side end portion containing section **471** and the lower side end portion containing section **472**.

Furthermore, in the present embodiment, chamfering is carried out in the slits **475** and **476** along the direction in which the upper end portion **431** and the lower end portion **432** of the ink pack **43** are each folded and curved. As a result, when the ink pack **43** contracts or expands, it is possible for the upper end portion **431** and the lower end portion **432** of the ink pack **43** to easily pass through the slits **475** and **476**. As a result, the upper end portion **431** and the lower end portion **432** of the ink pack **43** are smoothly accommodated in the flat upper side end portion containing section **471** and the upper side end portion containing section **472**. In addition, in the present embodiment, the upper end portion **431** and the lower end portion **432** of the ink pack **43** are each gradually contained inside the upper side end portion containing section **471** and inside the lower side end portion containing section **472** in accompaniment with the consumption of the ink. As a result, the ink pack **43** is not folded back inside the main portion containing section **470** and wrinkles are not generated. As a result, it is possible to consume the ink without waste.

In addition, in the present embodiment, the length of the inner circumference along the Z axis direction of the ink pack **43** is substantially the same as the length of the inner circumference along the Z axis direction of the main portion containing section **470**. As a result, since it is possible for the ink pack **43** to expand to every corner inside the main portion containing section **470**, it is possible to inject the ink after maximizing the space inside the case member **41**. Here, the reason that the two lengths are "substantially the same" and not exactly the same is because the ink pack **43** has a thickness.

Furthermore, in the present embodiment, the ink is injected into the ink pack **43** after the ink pack **43** is inserted into the case member **41**. As a result, it is possible to form the cartridge **40** considerably more easily than by insertion into the case member **41** after the ink is injected into the ink pack **43**. In addition, in the present embodiment, the upper end portion **431** and the lower end portion **432** of the ink pack **43** are contained in the upper side end portion containing section **471** and the lower side end portion containing section **472** and the ink is injected into the ink pack **43** in a state where the main portion of the ink pack **43** is contained in the main portion containing section **470**. As a result, when the ink pack **43** expands in accompaniment with the injecting of the ink, it is possible to suppress the ink pack **43** from folding back inside the case member **41** or becoming wrinkled. As a result, it is possible to easily perform the injecting of the ink.

Above, an embodiment of the present invention has been described, but the present invention is not limited to such an embodiment and is able to be realized in various forms within a range which does not depart from the scope of the invention.

For example, without being limited to the printing apparatus and the cartridge thereof, it is also possible for the present invention to be applied to an arbitrary liquid ejecting apparatus which ejects another liquid other than ink and a liquid containing vessel thereof. For example, application is possible to the following various types of liquid ejecting apparatuses and liquid containing vessels thereof.

(1) An image recording apparatus such as a facsimile apparatus

(2) A coloring material ejecting apparatus which is used in the manufacturing of color filters for image display apparatuses such as liquid crystal displays

(3) An electrode material ejecting apparatus which is used in the forming of electrodes such as an organic EL (electroluminescence) display, a surface emitting display (Field Emission Display, FED), or the like

(4) A liquid ejecting apparatus which ejects a liquid which includes bio organic matter which is used in bio chip manufacturing

(5) A sample ejecting apparatus which is a precision pipette

(6) A lubricant ejecting apparatus

(7) A resin liquid ejecting apparatus

(8) A liquid ejecting apparatus which ejects lubricant in a pin point manner into precision machinery such as a watch or a camera

(9) A liquid ejecting apparatus which ejects a transparent resin liquid such as an ultraviolet ray curable resin liquid onto a substrate in order to form a micro hemispherical lens (optical lens) or the like which is used in an optical communication element or the like

(10) A liquid ejecting apparatus which ejects an acidic or alkaline etching liquid for etching a substrate or the like

(11) A liquid ejecting apparatus which is provided with a liquid ejecting head which discharges liquid droplets in other arbitrary minute amounts

Here, "liquid droplet" refers to a state of liquid which is discharged from a liquid ejecting apparatus, and includes droplets which have a trail in a granular shape, a teardrop shape, or a thread shape. In addition, it is sufficient if the "liquid" as used here is a material which is able to be ejected by a liquid ejecting apparatus. For example, it is sufficient if the "liquid" is a material in a state where a substance is in a liquid phase and the "liquid" includes materials in a liquid state with high or low viscosity, and materials in a liquid state such as sols, gel water, other inorganic solvents, organic solvents, solutions, liquid resins, and liquid metals (metal melts). In addition, the "liquid" includes not only liquids as a single substance state but also where particles of a functional material which is formed of solid matter such as a pigment or metal particles are dissolved, dispersed, or mixed into a solvent. In addition, typical examples of the liquid include ink, as described in the embodiment described above, liquid crystals, or the like. Here, the ink includes various types of liquid compositions such as gel inks and hot melt inks in addition to general water based inks and oil based inks.

The invention claimed is:

1. A liquid container comprising:

a liquid containing bag including a flat end portion extending in a first direction, the flat end portion of the liquid containing bag being formed by bonding a flexible film member;

a liquid flow path member supplying liquid in the liquid containing bag to a liquid consumption apparatus, the liquid flow path member being fixed to the liquid containing bag; and

a case member defining an opening at one end and accommodating the liquid containing bag inserted from the opening in the first direction, the case member having

an end portion accommodating section extending in the first direction and accommodating at least the end portion of the liquid containing bag,

a main portion accommodating section accommodating a main portion of the liquid containing bag, and

a partition wall partitioning the flat end portion accommodating section and the main portion accommodating section, the partition wall including a slit extending along the first direction, with the end portion of the liquid containing bag being inserted through the slit,

the flat end portion being provided in the liquid containing bag which is a separate member from the liquid flow path member.

2. The liquid container according to claim **1**, wherein

an end portion of at the one end of the slit and an end portion at the one end of the end portion accommodating section communicate with the opening, and

the end portion at the one end of the end portion accommodating section is widened toward the opening.

3. The liquid container according to claim **1**, wherein

a portion of the partition wall where the slit is formed is chamfered.

4. The liquid container according to claim **1**, wherein

a length of an inner circumference along a second direction of the liquid containing bag and a length of an inner circumference along the second direction of the main portion accommodating section are substantially the same.

5. The liquid container according to claim **1**, wherein

liquid is injected into the liquid containing bag in a state where the end portion is accommodated in the end portion accommodating section and the main portion is accommodated in the main portion accommodating section.

6. A liquid consumption apparatus comprising:

the liquid container according to claim **1**,

the liquid consumption apparatus being configured and arranged to consume liquid contained in the liquid container.

7. A liquid container adapted to be mounted in a liquid consumption apparatus and to accommodate a liquid containing bag including a main portion filled with liquid and an end portion other than the main portion, and a liquid flow path member supplying liquid in the liquid containing bag to the liquid consumption apparatus, the end portion of the liquid containing bag being formed by bonding a flexible film member and the liquid flow path member being fixed to the liquid containing bag, the liquid container comprising:

a case including

an end portion accommodating section configured and arranged to accommodate the end portion of the liquid containing bag;

a main portion accommodating section configured and arranged to accommodate the main portion of the liquid containing bag; and

a slit through which the end portion of the liquid containing bag is inserted, the slit extending along a first direction which is a mounting direction in which the liquid container is mounted to the liquid consumption apparatus,

the end portion being provided in the liquid containing bag which is a separate member from the liquid flow path member.

8. The liquid container according to claim **7**, wherein

one side of the case is opened, and

the end portion accommodating section is widened toward the opening.

9. The liquid container according to claim **7**, wherein

a portion of a wall of the case where the slit is formed is chamfered.

10. The liquid container according to claim 7, wherein a length of the liquid containing bag and a length of the main portion accommodating section are substantially the same in a second direction orthogonal to the first direction.

11. The liquid container according to claim 7, wherein liquid is injected into the liquid containing bag in a state where the end portion of the liquid containing bag is accommodated in the end portion accommodating section and the main portion of the liquid containing bag is accommodated in the main portion accommodating section.

12. A liquid consumption apparatus comprising: liquid container according to claim 7,

the liquid consumption apparatus being configured to consume liquid contained in the liquid container.

13. The liquid container according to claim 1, wherein the case member includes a first case and a second case, and

the opening is defined between the first case and the second case at one end of the case member to accommodate the liquid containing bag inserted from the opening in the first direction in a state where the first case and the case are assembled.

14. The liquid container according to claim 7, wherein the case includes a first case and a second case, and

the case has an opening defined between the first case and the second case at one end of the case to accommodate the liquid containing bag inserted from the opening in a state where the first case and the case are assembled.

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